

Notice of Allowability

Application No.

10/623,658

Examiner

Charles E. Lu

Applicant(s)

SHIN, HYOSEOP

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment 8/23/2007; Interview/Examiner's Amendment 10/23/2007.
2. ☒ The allowed claim(s) is/are 77-78, 81, 84, renumbered as claims 1-4.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20071025.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. Claims 1-76, 79-80, 82-83, and 85-87 are cancelled. Claims 77, 78, 81, and 84 are amended and pending.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to the applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jay Litle on 10/23/2007.

The application has been amended as follows:

Claims 1-76 (canceled).

77. (Currently Amended): An index structure for metadata divided into fragments, the index structure contained in a computer readable storage medium and comprising:

a key index list section comprising a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata used simultaneously to locate and extract a fragment of metadata;

a key index section; and

a sub-key index section, wherein for a multi-key of the key index list:

the sub-key index section comprises ranges of values of the multi-key and identification information on ones of the fragments of the metadata corresponding to the values of the multi-key, and

the key index section comprises representative key values representing the respective ranges of values of the multi-key, wherein with respect to comparison of the values of a multi-key in size, the multi-key comprises fields $(k_1, k_2, k_3 \dots k_n)$ of the metadata which are prioritized $(k_1 > k_2 > k_3 > \dots k_n)$, and the combined fields are compared in sequence, starting from a first field having a highest order of priority, wherein the values are compared on an arithmetic basis where the values of the multi-key are numerical or ranked in lexicographical order where the values of the multi-key are alphabetical,

wherein for two multi-key values, (a_1, a_2, \dots, a_n) and (b_1, b_2, \dots, b_n) :

(a_1, a_2, \dots, a_n) is larger than (b_1, b_2, \dots, b_n) if and only if there exists an integer i $(0 \leq i \leq n-1)$ such that for every j $(0 \leq j \leq n-1)$, $a_j = b_j$ and $a_i > b_i$;

(a_1, a_2, \dots, a_n) is smaller than (b_1, b_2, \dots, b_n) if and only if there exists an integer i $(0 \leq i \leq n-1)$ such that for every j $(0 \leq j \leq n-1)$, $a_j = b_j$ and $a_i < b_i$; and

(a_1, a_2, \dots, a_n) is equal to (b_1, b_2, \dots, b_n) if and only if for every i $(0 \leq i \leq n-1)$, $a_i = b_i$.

78. (previously presented): The multi-key index structure as claimed in claim 77, wherein the key index list section further comprises location information for defining the multi-keys, wherein at least a part of the location information is expressed as a predetermined code.

Claims 79-80 (canceled).

81. (Currently Amended): A computer readable storage medium containing a data structure for storing an index for metadata divided into fragments, the index provided to search the metadata, the data structure comprising:

a key index list section comprising a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata used simultaneously to locate and extract a fragment of metadata;

a key index section; and

a sub-key index section, wherein for a multi-key of the key index list:

the sub-key index section comprises ranges of values of the multi-key and identification information on ones of the fragments of the metadata corresponding to the values of the multi-key, and

the key index section comprises representative key values representing the respective ranges of values of the multi-key, wherein with respect to comparison of the values of a multi-key in size, the multi-key comprises fields (k1, k2, k3...kn) of the

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metadata which are prioritized ($k_1 > k_2 > k_3 > \dots > k_n$), and the combined fields are compared in sequence, starting from a first field having a highest order of priority, wherein the values are compared on an arithmetic basis where the values of the multi-key are numerical or ranked in lexicographical order where the values of the multi-key are alphabetical,

wherein for two multi-key values, (a_1, a_2, \dots, a_n) and (b_1, b_2, \dots, b_n) :

(a_1, a_2, \dots, a_n) is larger than (b_1, b_2, \dots, b_n) if and only if there exists an integer i ($0 \leq i \leq n-1$) such that for every j ($0 \leq j \leq n-1$), $a_j = b_j$ and $a_i > b_i$;

(a_1, a_2, \dots, a_n) is smaller than (b_1, b_2, \dots, b_n) if and only if there exists an integer i ($0 \leq i \leq n-1$) such that for every j ($0 \leq j \leq n-1$), $a_j = b_j$ and $a_i < b_i$; and

(a_1, a_2, \dots, a_n) is equal to (b_1, b_2, \dots, b_n) if and only if for every i ($0 \leq i \leq n-1$), $a_i = b_i$.

Claims 82-83 (canceled).

84. (previously presented): The index structure as claimed in claim 77, wherein the multi-key is comprised of a plurality of attributes of the fragment of metadata.

Claims 85-87 (canceled).

Allowable Subject Matter

4. Claims 77, 78, 81, and 84, as amended by examiner's amendment, are allowed.

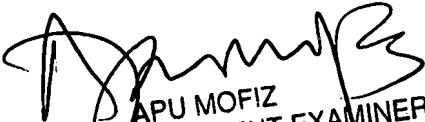
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CL/
Assistant Examiner
AU 2161
10/25/2007


APU MOFIZ
SUPERVISORY PATENT EXAMINER